
JOURNAL
OF THE
ARNOLD ARBORETUM

VOL. XLII

JANUARY 1961

NUMBER 1

IVAN MURRAY JOHNSTON, 1898-1960

RICHARD A. HOWARD

*With portrait **

IVAN M. JOHNSTON was born in Los Angeles, California, on February 28, 1898, the son of William Murray and Etta Farnsworth Johnston. He died suddenly on May 31, 1960. His career was devoted to taxonomic botany, and, by combining field work with herbarium study, he was able to bring to his many publications an intimate knowledge of the plants about which he wrote. Few men of his generation did this so well, and fewer students today are developing this ability.

Johnston's interest in local flora and field observations was stirred while he was still a student in high school. He collected plants and sent specimens to the botanical leaders of this period, each with critical observations not usually associated with a student of his age. His college work was begun at Pomona College (1916-1918) before he transferred to the University of California at Berkeley where he received his A.B. degree in 1919. During these formative years he was influenced by T. S. Brandegee, Alice Eastwood, Harvey M. Hall, W. L. Jepson, P. A. Munz, S. B. Parish and W. A. Setchell, each of whom can be associated with some aspect of his future work. Hall and Parish guided Johnston to his work on the San Gabriel Mountains of California. Setchell and Brandegee to the work on Baja California and the desert vegetation of Mexico, and Jepson to the work on the family Boraginaceae which was to become Johnston's most significant contribution. Munz was his collaborator on many papers and Miss Eastwood his ideal of botanical efficiency. Johnston also received his M.A. degree from the University of California (1922) before coming to Harvard in the Fall of that year to continue his work towards his doctorate which he received in 1925.

During his undergraduate years he did field work in the San Gabriel mountains with S. B. Parish and in the vicinity of Claremont, California with P. A. Munz. Some of the troublesome specimens were sent to Macbride at the Gray Herbarium, and thus began a correspondence that led

* This portrait was taken by Ernst Abbe in 1942 at the Gray Herbarium, Cambridge, Massachusetts.

eventually to Johnston's application to Harvard for graduate work and a long association with the Gray Herbarium. In 1918, Johnston expressed his annoyance to Macbride that *Amsinckia* and *Cryptantha* were in a "mess." Macbride subsequently named the specimen which had bothered him *Cryptantha intermedia* var. *johnstonii*. Another collection sent to Rydberg was named by him *Rosa johnstonii*. These two appear to be the first of nearly a dozen taxonomic epithets commemorating Ivan Johnston's active botanical role.

During the summers of 1919, 1920 and 1922 Johnston worked as an assistant at the Alpine Laboratory of the Carnegie Institution near Boulder, Colorado. He served as assistant and companion to Dr. Harvey Hall in ecological studies involving the transplanting of paired species of restricted distribution from one environment to another to determine the effects of soils, altitude and genetic factors on the tolerance, adaptability and the morphological characteristics of the species. This early training created in him an awareness of soil types in relation to plant distribution which was to be present in all his botanical observations in future years and which, in many ways, was influential in his taxonomic decisions.

The summer of 1921 Johnston spent on a California Academy of Sciences expedition to the Gulf of California as the official botanical collector. He wrote to Macbride, "The expedition touched on every island of the Gulf of California and at a number of localities on the Sonoran and peninsular coasts. I had the time of my young life as you may imagine. I got about 1400 numbers which aggregate in the neighborhood of 8000 specimens." Encouraged by Macbride's subsequent interest, Johnston made his plans to go to Cambridge for graduate work. He was awarded an Austin Fellowship but chose instead employment offered by B. L. Robinson as herbarium assistant in the Gray Herbarium. He was listed as such on the Gray Herbarium letterhead for the years of his graduate work. Johnston completed his graduate work in 1925 with a thesis on "The North American Species of *Cryptantha*." He was awarded a Sheldon Travelling Fellowship by Harvard which he used for a long trip to Chile, departing from New York on October 1, 1925, and returning on May 31, 1926. His field work in Chile was both energetic and successful. Physically active and personable he made many friends on the boat trip south and received invitations to visit remote areas for his collecting. His interest in following the desert routes of Philippi, as well as entering into new areas, led him from the driest of desert areas to Andean locations at 17,000 feet. Many of his collecting areas have not been revisited as they represent remote locations difficult to reach. The work on these collections was to occupy him for many years and necessitated trips to European herbaria for study in 1927, 1929 and 1932-1933. The last trip to Europe, made on an award of a Guggenheim Fellowship, served as a wedding trip and established contact with many European botanists.

Following the death of Charles Sargent, director of the Arnold Arboretum, in 1930, Prof. Oakes Ames was appointed supervisor of the botanical collections of Harvard University. Professor Ames secured the resig-

nation of Johnston as senior assistant at the Gray Herbarium and his appointment as research associate at the Arnold Arboretum on August 1, 1931. This appointment was to enable Johnston to continue his field work in South America and his work on the Boraginaceae. Ames had extensive plans for Johnston to return to Chile, to visit the central Andean region, and to extend the interests of the Arboretum to Argentina and Brazil. The program for exploration was delayed but Johnston's intense interest in the flora of the desert areas of South America persisted to the end of his life.

For the remainder of his professional career Johnston was associated with the Arnold Arboretum. To enable him to teach within Harvard College, Johnston was appointed a lecturer in 1934, and in 1938 he was given the title of Associate Professor. After the retirement of Dr. E. D. Merrill as director of the Arnold Arboretum in 1947, Prof. Karl Sax was made acting director and Dr. Johnston supervisor of the herbarium and library. He served as associate director of the Arnold Arboretum from 1948 until 1954.

Johnston's courses, offered as a teacher, were of varying quality. Most outstanding was a survey of the families of flowering plants where his field knowledge of so many families, coupled with his comprehensive knowledge of the botanical literature, made the presentation of great value to the many students who enrolled in or audited the course. He supervised the graduate work of three students, one Chinese, one Indian and one American.

The encouragement of Ames, and later Merrill, for Johnston to return to the field work which he previously had done so productively and so well was not successful until 1938, when he completed the first of three trips (1940, 1941) to the intermontane plateau and the deserts of northern Mexico. These trips were made with the coöperation of the Desert Laboratory of the Carnegie Institution. The most significant results of these trips were his papers on the relationships of floras of North and South American deserts and on the relation of vegetation types to soils, e.g., the gypsophile plants. Johnston started a series of papers on the species composition of the flora of the Coahuila area, and articles dealing with the pteridophytes, gymnosperms, monocotyledons, and the dicotyledons through the family Nyctaginaceae were published. The remainder of the collection was never studied.

During World War II, Johnston was called upon as a civilian for his botanical knowledge. He worked first in Massachusetts on the problems of using plant materials as camouflage and later, in Panama, supplied botanical data for studies of means of defoliating tropical forests by the use of chemicals. His papers on the flora of San José Island and other areas of the Isthmus of Panama present aspects of this service. He was cited by the United States Army for these contributions.

In the post-war years Johnston's botanical interests became more varied. His work with the pollen of *Lithospermum* caused him to consider seriously devoting his time to the field of palynology. An opportunity for contract work with the United States Army in Panama changed his in-

terests again to ecology, and in 1955–1956 he made four trips to Central America collecting data. At the end of his career he had returned to a study of the flora of the southwestern United States and adjacent Mexico through his coöperation with a project on the flora of Texas. A manuscript treatment of the Boraginaceae of Texas was almost complete at the time of his death. This, along with all his personal library and botanical records has been deposited at the Texas Research Foundation, Renner, Texas.

It was during this post-war period that Johnston became involved in a controversy with Harvard University officials and many of his colleagues. He sided with those opposing the move of any portion of the herbarium, library or staff of the Arnold Arboretum to the new herbarium building in Cambridge. The move was completed in 1954, but the controversy was not resolved at the time of his death.

Ivan M. Johnston had been a member of the American Academy of Arts and Sciences, the American Society of Plant Taxonomists, the Botanical Society of America, the New England Botanical Club, Sigma Xi, Gamma Alpha, the International Association of Plant Taxonomists, and a corresponding member of the Chilean Society of Natural History and the Argentine Society of Natural Sciences.

He is survived by his widow, Mildred Williamson Johnston, a son, William, and a daughter, Elizabeth (Mrs. Frederick Milleker).

BIBLIOGRAPHY *

— 1918 —

A few notes on the botany of southern California. *Bull. So. Calif. Acad.* 17: 64–66.

Some undescribed plants from southern California. *Bull. So. Calif. Acad.* 17: 63, 64.

— 1919 —

Contributions on southern Californian botany. *Bull. So. Calif. Acad.* 18: 18–21. The flora of the pine belt of the San Antonio Mountains of southern California. *Plant World* 22: 71–90; 105–122.

— 1922 —

The distribution of southern California Pteridophytes (with P. A. Munz). *Am. Fern Jour.* 12: 69–77; 101–122; 13: 1–7. 1923.

Miscellaneous notes on plants from southern California, I, II. (with P. A. Munz). *Bull. Torrey Club* 49: 31–44; 349–359.

Undescribed plants mostly from Baja California. *Univ. Calif. Publ. Bot.* 7: 437–446.

— 1923 —

Diagnoses and notes relating to the Spermatophytes chiefly of North America. *Contr. Gray Herb.* 68: 80–104.

Studies in the Boraginaceae. 1. Restoration of the genus *Hackelia*. 2. The genus

* Compiled by Lazella Schwarten.

- Antiphytum*. 3. Novelties and new combinations in the genus *Cryptantha*.
4. A synopsis and redefinition of *Plagiobothrys*. *Contr. Gray Herb.* **68**:
43-80.

— 1924 —

- Expedition of the California Academy of Sciences to the Gulf of California in
1921. The botany (the vascular plants). *Proc. Calif. Acad.* **IV**. **12**: 951-
1218.
Miscellaneous notes on plants from southern California, III. (with P. A. Munz).
Bull. Torrey Club **51**: 295-302.
New plants of Portuguese West Africa collected by Mrs. Richard C. Curtis.
Contr. Gray Herb. **73**: 31-40. *pl.* 1, 2.
On some South American Proteaceae. *Contr. Gray Herb.* **73**: 41, 42.
The Penstemons of southern California (with P. A. Munz). *Bull. So. Calif.*
Acad. **23**: 21-40.
Studies in the Boraginaceae, II. 1. A synopsis of the American native and immi-
grant Borages of the subfamily Boraginoideae. 2. A tentative classification
of the South American *Coldenias*. *Contr. Gray Herb.* **70**: 1-61.
Studies in the Boraginaceae. III. 1. The Old World genera of the Boraginoideae.
2. Notes on miscellaneous American Boraginaceae. *Contr. Gray Herb.* **73**:
42-78.
Taxonomic records concerning American Spermatophytes. 1. *Parkinsonia* and
Cercidium. 2. New or otherwise noteworthy plants. 3. A neglected paper
by Jean Louis Berlandier. 4. On the validity of Molina's scientific names.
Contr. Gray Herb. **70**: 61-92.

— 1925 —

- Further new plants collected by Mrs. Richard C. Curtis in tropical Africa. *Contr.*
Gray Herb. **75**: 23-26.
Miscellaneous notes on plants from southern California, IV (with P. A. Munz).
Bull. Torrey Club **52**: 221-228.
The *Oenotheras* of northwestern South America (with P. A. Munz). *Contr.*
Gray Herb. **75**: 15-23.
The *Potentillas* of southern California (with P. A. Munz). *Bull. So. Calif.*
Acad. **24**: 5-25.
Some undescribed American Spermatophytes. *Contr. Gray Herb.* **75**: 27-40.
Studies in the Boraginaceae, IV. The North American species of *Cryptantha*.
Contr. Gray Herb. **74**: 1-114.
Studies in the Boraginaceae, V. 1. Concerning the range and identity of certain
American species. 2. New or otherwise interesting Asiatic Borages. *Contr.*
Gray Herb. **75**: 40-49.

— 1926 —

- Some notes on the Chilean relatives of *Plantago patagonica* Jacq. *Revista Chil.*
Hist. Nat. **30**: 13-18.

— 1927 —

- Studies in the Boraginaceae, VI. A revision of the South American Boraginoi-
deae. *Contr. Gray Herb.* **78**: 1-118.

— 1928 —

- The botanical activities of Thomas Bridges. *Contr. Gray Herb.* **81**: 98-106.
Some undescribed American Spermatophytes. *Contr. Gray Herb.* **81**: 85-98.

Studies in the Boraginaceae, VII. 1. The South American species of *Heliotropium*. 2. Notes on various Boraginoideae. *Contr. Gray Herb.* 81: 1-83.

— 1929 —

A collection of plants from the high Cordilleras of northwestern San Juan. *Physis* 9: 297-326.

A new Chilean plant and some nomenclatorial changes. *Revista Chil. Hist. Nat.* 33: 25-27.

Papers on the flora of northern Chile. 1. The coastal flora of the departments of Chañaral and Taltal. 2. The flora of the Nitrate Coast. 3. Undescribed species from the Cordilleras of Atacama. *Contr. Gray Herb.* 85: 1-172. *pl.* 1, 2.

Some undescribed species from Peru. *Contr. Gray Herb.* 85: 172-180.

— 1930 —

Some notes on the flora of northern Chile. *Revista Chil. Hist. Nat.* 34: 228-234.

Studies in the Boraginaceae, VIII. 1. Observations on the species of *Cordia* and *Tournefortia* known from Brazil, Paraguay and Argentina. 2. Taxonomic notes concerning various Borages. *Contr. Gray Herb.* 92: 1-95.

— 1931 —

The flora of the Revillagigedo Islands. *Proc. Calif. Acad.* IV. 20: 9-104.

A new species of *Trigonotis* from southwestern China. *Candollea* 4: 310, 311.

New Spermatophytes from Mexico and Argentina. *Contr. Gray Herb.* 95: 53-55.

The vascular flora of the Guano Islands of Peru. *Contr. Gray Herb.* 95: 26-35. *pl.* 6, 7.

— 1932 —

New records for the flora of the Nitrate Coast. *Revista Chil. Hist. Nat.* 36: 4-8.

Studies in the Boraginaceae, IX. 1. The *Allocarya* section of *Plagiobothrys* in the western United States. 2. Notes on various Borages of the western United States. *Contr. Arnold Arb.* 3: 1-102.

— 1935 —

Boraginaceae. *In*: Munz, P. A. A manual of southern California botany: 417-436.

The flora of San Felix Island. *Jour. Arnold Arb.* 16: 440-447. *pl.* 165.

Studies in the Boraginaceae, X. The Boraginaceae of northeastern South America. *Jour. Arnold Arb.* 16: 1-64.

Studies in the Boraginaceae, XI. The species of *Tournefortia* and *Messerschmidia* in the Old World. 2. Notes on Brand's treatment of *Cryptantha*. 3. New or otherwise noteworthy species. *Jour. Arnold Arb.* 16: 145-205.

— 1936 —

Boraginaceae. *In*: Pulle, A. Flora of Suriname 4¹: 306-333.

A study of the Nolanaceae. *Proc. Am. Acad.* 71: 1-87. Reprinted in *Contr. Gray Herb.* 112: 1-87.

— 1937 —

Studies in the Boraginaceae, XII. 1. *Trigonotis* in southwestern China. 2. Novelties and critical notes. *Jour. Arnold Arb.* 18: 1-25.

— 1938 —

- New or noteworthy plants from temperate South America. *Jour. Arnold Arb.* **19**: 248-263.
- Notes on some *Astragalus* species of Ecuador and Peru. *Jour. Arnold Arb.* **19**: 88-96.
- Some undescribed species from Mexico and Guatemala. *Jour. Arnold Arb.* **19**: 117-128.
- The species of *Sisyrinchium* in Uruguay, Paraguay and Brazil. *Jour. Arnold Arb.* **19**: 376-401.

— 1939 —

- New Fuchsias from southern Peru. *Jour. Arnold Arb.* **20**: 241-244.
- New phanerogams from Mexico. *Jour. Arnold Arb.* **20**: 234-240.
- The preparation of botanical specimens for the herbarium. 1-33. *pl.* 1-5. The Arnold Arboretum, Jamaica Plain, Mass.
- Studies in the Boraginaceae, XIII. New or otherwise noteworthy species, chiefly from western United States. *Jour. Arnold Arb.* **20**: 375-402.

— 1940 —

- The floristic significance of shrubs common to North and South American deserts. *Jour. Arnold Arb.* **21**: 356-363.
- New phanerogams from Mexico, II, III. *Jour. Arnold Arb.* **21**: 67-75; 253-265.
- Studies in the Boraginaceae, XIV. Miscellaneous species from Asia, Malaysia, and America. *Jour. Arnold Arb.* **21**: 48-66.
- Studies in Boraginaceae, XV. Notes on some Mexican and Central American species of *Cordia*. *Jour. Arnold Arb.* **21**: 336-355.

— 1941 —

- Bibliographic data concerning Gay's Flora de Chile. *Darwiniana* **5**: 154-165.
- El significado florístico de los arbustos comunes a los desiertos norte y sudamericanos. *Revista Argent. Agron.* **8**: 114-121.
- Gypsophily among Mexican desert plants. *Jour. Arnold Arb.* **22**: 145-170.
- New Phanerogams from Mexico, IV. *Jour. Arnold Arb.* **22**: 110-124.
- Preparación de ejemplares botánicos para herbario. Traducido del Inglés al Castellano por H. R. Descole y C. A. O'Donell. 1-49. *pl.* 1-5. Tucumán.

— 1942 —

- Boraginaceae. *In*: Kearney, T. H. & Peebles, R. H. Flowering plants and ferns of Arizona. U. S. Dept. Agr. Misc. Publ. **423**: 740-761.

— 1943 —

- New phanerogams from Mexico, V. *Jour. Arnold Arb.* **24**: 90-98.
- Noteworthy species from Mexico and adjacent United States. I. *Jour. Arnold Arb.* **24**: 227-236.
- Plants of Coahuila, eastern Chihuahua, and adjoining Zacatecas and Durango, I, II. *Jour. Arnold Arb.* **24**: 306-339, 375-421.
- Publication dates for the botanical parts of the Pacific Railroad reports. *Jour. Arnold Arb.* **24**: 237-242.

— 1944 —

- Plants of Coahuila, eastern Chihuahua, and adjoining Zacatecas and Durango, III-V. *Jour. Arnold Arb.* **25**: 43-83; 133-182; 431-453.

Publication dates of Gaudichaud's Botany of the Voyage of the Bonite. Jour. Arnold Arb. 25: 481-487.

— 1945 —

A Phytogeographic sketch of Latin America (with A. C. Smith). *In*: Verdoorn, F. Plants and Plant Sciences in Latin America: 337-349.

The vegetation of San José Island, Perlas group, Republic of Panama. Chemical Warfare Service, San José Project Report 87: 1-104; 88: 1-50.

— 1947 —

Astragalus in Argentina, Bolivia and Chile. Jour. Arnold Arb. 28: 336-409.

— 1948 —

Boraginaceae. *In*: Maguire, *et al.* Plant explorations in Guiana in 1944, chiefly to the Tafelberg and the Kaieteur Plateau—V. Bull. Torrey Club 75: 562.

Noteworthy species from Mexico and adjacent United States, II. Jour. Arnold Arb. 29: 193-197.

Studies in the Boraginaceae, XVI. Species chiefly from Mexico and western United States. Jour. Arnold Arb. 29: 227-241.

— 1949 —

The Botany of San José Island (Gulf of Panama). *Sargentia* 8: 1-306. *pl.* 1-17.
Studies in the Boraginaceae, XVII. A. *Cordia* section *Varronia* in Mexico and Central America. B. The identity of species proposed by Sessé and Mociño. Jour. Arnold Arb. 30: 85-110.

Studies in the Boraginaceae, XVIII. Boraginaceae of the southern West Indies. Jour. Arnold Arb. 30: 111-138.

— 1950 —

Noteworthy species from Mexico and adjacent United States, III. Jour. Arnold Arb. 31: 188-195.

Studies in the Boraginaceae, XIX. A. Noteworthy species from tropical America. B. *Cordia* § *Gerascanthus* in Mexico and Central America. Jour. Arnold Arb. 31: 172-187.

— 1951 —

Studies in the Boraginaceae, XX. Representatives of three subfamilies in eastern Asia. Jour. Arnold Arb. 32: 1-26; 99-122.

Studies in the Boraginaceae, XXI. Sino-Indian species of *Onosma*. Jour. Arnold Arb. 32: 201-225; 344-368.

— 1952 —

Studies in the Boraginaceae, XXII. Noteworthy species, chiefly Asian and South American. Jour. Arnold Arb. 33: 62-78.

Studies in the Boraginaceae, XXIII. A survey of the genus *Lithospermum*. Jour. Arnold Arb. 33: 299-366. *pl.* 1-3.

— 1953 —

Boraginaceae. *In*: Flora Trinidad & Tobago. Dept. Agriculture Trinidad & Tobago 2⁴: 189-209.

Boraginaceae. *In*: Steyermark, J. A., *et al.* Contributions to the Flora of Venezuela. *Fieldiana Bot.* **28**: 511, 512.

Studies in the Boraginaceae, XXIV. A. Three genera segregated from *Lithospermum*. B. Supplementary notes on *Lithospermum*. *Jour. Arnold Arb.* **34**: 1-16.

Studies in the Boraginaceae, XXV. A revaluation of some genera of the Lithospermeae. *Jour. Arnold Arb.* **34**: 258-299.

— 1954 —

Studies in the Boraginaceae, XXVI. Further revaluations of the genera of the Lithospermeae. *Jour. Arnold Arb.* **35**: 1-81.

Studies in the Boraginaceae, XXVII. Some general observations concerning the Lithospermeae. *Jour. Arnold Arb.* **35**: 158-166.

— 1956 —

Studies in the Boraginaceae, XXVIII. New or otherwise interesting species from America and Asia. *Jour. Arnold Arb.* **37**: 288-306.

Terrain study of the Panama Canal Zone with special reference to the Fort Sherman area and vicinity (with McCullough, C. R. & Parker, J. M.) North Carolina State College, Dept. Engineering Research. 1-267.

— 1957 —

Boraginaceae. *In*: Steyermark, J. A., *et al.* Contributions to the flora of Venezuela. *Fieldiana Bot.* **28**: 1080-1082.

Studies in the Boraginaceae, XXIX. *Echiochilon* and related genera. *Jour. Arnold Arb.* **38**: 255-293.

— 1959 —

Some noteworthy American Borages. [Studies in the Boraginaceae XXX.] *Wrightia* **2**: 13-22.